THE ADVISORY BOARD ON RADIATION AND WORKER HEALTH
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CENTERS FOR DISEASE CONTROL AND PREVENTION

Summary Minutes of the Forty-seventh Meeting
June 11-12, 2007

The Forty-seventh Meeting of the Advisory Board on Radiation and Worker Health (ABRWH or the Board) was held June 11 and 12, 2007, at the Sheraton Denver West in Lakewood, Colorado. The meeting was called by the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH), the agency charted with administering the ABRWH. These summary minutes, as well as a verbatim transcript certified by a court reporter, are available on the internet on the NIOSH/Office of Compensation Analysis and Support (OCAS) web site located at www.cdc.gov/niosh/ocas.

Those present included the following:

Board Members:

Dr. Paul Ziemer, Chair; Ms. Josie Beach; Mr. Bradley Clawson; Mr. Michael Gibson (telephonically); Mr. Mark Griffon; Dr. James Lockey (telephonically); Dr. James Melius; Ms. Wanda Munn; Dr. John Poston (telephonically); Mr. Robert Presley; Dr. Genevieve Roessler; and Mr. Phillip Schofield (telephonically).

Designated Federal Official: Dr. Lewis Wade, Executive Secretary.

Federal Agency Attendees:

Department of Health and Human Services:

Dr. John Howard, Dr. James Neton, Dr. Brant Ulsh (NIOSH); Ms. Emily Howell, Ms. Liz Homoki-Titus (Office of General Counsel)

Department of Labor: Mr. Pete Turcic

Department of Energy:

Contractors:

Dr. Arjun Makhijani and Dr. John Mauro, Sanford Cohen & Associates.

Congressional Staff Members:

Ms. Carolyn Boller (Congressman Mark Udall)
Mr. David Hiller (Senator Ken Salazar)

Mr. Bill Holen (Congressman Perlmutter)

Members of Congress:

Congressman Bob Beauprez; Congressman Mark Udall

Other Participants:

See Registration

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Monday, June 11, 2007

Dr. Paul Ziemer, Board Chairman, called the meeting to order. He announced this was a special meeting focusing mainly on the Rocky Flats SEC petition, but other business will be handled as well. The agenda and pertinent documents are publicly available in the rear of the room.

Dr. Lewis Wade, Designated Federal Official, joined in welcoming the assembly and outlined the program he anticipated would be followed for the meeting.

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USE OF DATA FROM OTHER SITES

Dr. Lewis Wade,
Executive Secretary

Dr. Wade explained the Board had asked the agenda for this meeting include a NIOSH presentation on this issue. At the previous meeting Ms. Liz Homoki-Titus had made a draft presentation looking at the law and rules, leaving open the deliberative process that moved from the original Congressional action to NIOSH rules. That had been omitted because the general law division determined that the deliberative process could not be shared in a public meeting if it would violate attorney/client privilege, or attorneys advising the Secretary and his staff on deliberative matters.

Dr. James Melius, as chairman of the working group on use of surrogate data, had since that time reinforced the importance of the Board's understanding of that process. Therefore the proposal is that at a closed session of the Board the Office of the General Counsel would present the Board with the deliberative process logic that is the foundation for using data from other sites. Following such a presentation the Board would have a chance to engage in discussion with

the Office of General Counsel staff and be free, in public session, to debate and make its recommendations on the Bethlehem Steel SEC petition.

Dr. Wade then proposed that if such a process is agreeable to everyone after some discussion, he would schedule an administrative meeting at the beginning of the July Board meeting, at which time the Office of GC would share that deliberative process and then move into an open session where the Board could take up the issue.

Ms. Homoki-Titus confirmed that **Dr. Wade**'s description of the process was clear and was the advice her office had received from the general law division. She clarified the difference between a closed session and an administrative session, which would be for the Board to receive legal advice, and that is the terminology that should be applied to the particular meeting between the Board and the GC. It will be doing preparatory work for the next Board meeting, which is outside the charter and the authorizing legislation.

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SELECTION OF 8TH ROUND OF DOSE RECONSTRUCTION REVIEWS

Additional information had been requested on a list of potential cases supplied earlier by **Mr. Stu Hinnefeld** of NIOSH. The Board was provided a spreadsheet, which included Privacy Act information, showing those cases. **Ms. Emily Howell** from the HHS Office of General Counsel was asked to explain the difference between what the Board was provided versus the public document.

Ms. Howell noted what was available to the public did not include two categories, those of job title and work area, which the Board would need in their decision-making process. She asked that, as the Board discussed the cases and made their choices, the members refrain from speaking about the information contained in those columns. She also requested that Board members either destroy the document after the meeting, maintain them in their sole possession, or return them to her.

Mr. Mark Griffon, as chairman of the Subcommittee on Dose Reconstruction, reminded the Board that in the seventh round of cases they had followed the same process in requesting additional information. He explained the change in the matrix and the addition of other categories.

Dr. Ziemer observed the candidate list had 43 cases and the subcommittee has asked the Board to narrow this to 32 cases for the next audit, although that is only a target number. It can be less.

The Board discussed whether overestimate/underestimate cases were included on the list and what value there might be to including them. Criteria for selection was discussed, with various Board members offering opinions on whether facility, cancer model, organ of interest, et cetera, should be criteria for review. As explained by **Mr. Griffon**, when the subcommittee made their initial selection they were looking at facility and decade.

Dr. Wade offered a reminder that it is normally the subcommittee that looks at the selections and in the case of this special meeting there had not been a subcommittee meeting scheduled. At the last meeting its recommendations had been brought to the Board and the entire Board participated in selection of these 43 cases. The Board is being presented the task of this paring down process since it is that body that was scheduled to meet today. The subcommittee and the full Board actually share work.

After discussion of each case on the list of 43 it was ultimately narrowed to 30 cases. It was agreed this would represent SC&A's remaining workload for the fiscal year.

A motion was made and seconded that the 30 cases selected by the Board be recommended as the assignment to SC&A for the 8th round of dose reconstruction audits.

The cases selected were read into the record by **Dr. Wade**.

The motion carried by a unanimous vote of 10-0.

It was agreed that the Chair and the DFO would prepare a proposed list of teams for the 8th round of reviews to have ready for presentation at the July meeting.

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PLANS FOR SC&A CONTRACT TASKS FOR THE NEXT FISCAL YEAR

Dr. Wade noted it was time to look at tasking the Board's contractor for the next fiscal year. He suggested deliberations at this meeting, with enough specificity to ask SC&A to develop specific proposals, to include ranges of products for next year. Those proposals could be brought to the July meeting, with the Board moving toward making a decision for the next fiscal year. That schedule would put the status in synch with the government's funding time lines and plans. Discussion could be held today and, if necessary, tomorrow to move toward finalizing the request for proposals.

The SC&A contract has a number of tasks, the first of which is review of site profiles. **Dr. Wade** reported he had requested **Dr. John Mauro** from SC&A share with the Board details of a status report on the work they have done to date. **Dr. Mauro** confirmed there are a total of 21 site profile reviews authorized from the beginning of the project, and all but three or four have been delivered.

A list of 44 work sites for which NIOSH has developed technical documents was provided to the Board. That represents the universe of sites for which there are site profiles. He observed the Board has started its reviews of large sites early on, with a population of sites the contractor has not yet been asked to evaluate. SC&A has been looking at six reviews annually and the question for the Board is whether to continue that pace or deviate from it for some reason.

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Discussion Points:

- Whether the Board should increase the number of sites or maintain the six annual reviews;
- Concern about keeping up with site profile review closeouts on those already started and the ability to be auditing individual DRs at the same time;
- Of the 21 site profiles already done, approximately 11 are in the closeout phase;
- The remaining ten closeouts have not even started;
- An indication that closeout process is not initiated means the ball is in the Board's court and is not SC&A's issue;
- The only site profile from last year underway in the closeout process is the Fernald site, which means SC&A is a year ahead of the Board in terms of producing the site profile reviews;
- This year's work is in various stages of another six site profile reviews;
- The situation is complicated by site profiles that are undergoing or have undergone major revisions;
- A more detailed look should be taken at where things stand with various site profile reviews and closeouts to get an estimated time for the Board and NIOSH to do their work;
- Some of the site profiles being reviewed now have an SEC aspect added to that review, which make for a more confounding problem;
- There are both personnel and money constraints that are of concern;
- There are no major worries with contract funding for this year and adequate funding is expected for next year as well;

- SC&A has a highly skilled staff that is not inexpensive, and every time they're asked by the Board to perform some task, it costs a good bit of money, which adds up quickly and could result in something else not getting done because the budget is limited;
- The NIOSH budget also comes into play because resolution of issues depends on NIOSH being at the table during that process;
- The DR audits are being done now in fewer work hours per case and will probably be coming in under budget on that task, as well as the procedures review task, so there exists the option that those resources could be moved to the Task V SEC review.

Dr. Ziemer observed this opens the door for discussions tomorrow and reminded the Board that there are also blind dose reconstruction reviews coming up which is an unknown in terms of what it will take in time and effort. The number, however, is small enough that it isn't expected it would have a major impact on funding.

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SANDIA LIVERMORE SEC PETITION

NIOSH Evaluation Report

Dr. James Neton,
NIOSH

Dr. Neton reminded the assembly that at the last Board meeting NIOSH had presented an SEC evaluation report of SEC Petition 0059, which had been issued on March 26. In that presentation NIOSH concluded they could reconstruct dose to the class of workers proposed. That was a class definition that encompassed X-ray technologists and materials technicians between 1967 and 1990 in certain rooms within Sandia National Laboratory. The petitioner had been unable to attend the May meeting but had a letter prepared which was read into the record at the meeting, with many issues raised in that letter. Among other things was the non-homogenicity of the exposures to workers on X-ray diffraction units, and in particular the inability of the film badge to accurately measure the radiation exposure to various parts of the body.

Because of this letter the Board delayed discussion of the petition pending a NIOSH review and evaluation of those statements, and that has been done. NIOSH is re-evaluating their position and **Dr. Neton** reported they had done literature reviews to try to get a better handle on the types of equipment used in the laboratory, and on the exposure geometries in those unique settings. The petitioner had raised the idea that these were not standard exposure geometries, but there were

some home-made calibration jigs and such made to accommodate various size samples at Sandia.

The petitioner has also been interviewed to get further statements regarding his exposure situation and the geometries involved. NIOSH is still re-interviewing a health physicist who covered and is still available to discuss that. A supplement to the evaluation report is being prepared at this time and will be issued shortly. It is not available for this meeting, but it is targeted to be available prior to the July 17 Board meeting, it is hoped in time for everybody to be able to review the document a couple of weeks before the meeting.

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Petitioner Response

Mr. Gerald Giovaccini,
Petitioner

Mr. Giovaccini was on the line and raised the question of NIOSH having enough dose information to accurately calculate the dose incurred by the proposed class. He discussed the definition of the word "accuracy", noted the petition was filed because exposures went unmonitored and are inadequately recorded. **Mr. Giovaccini** asserted that sick applicants are being penalized for careless record-keeping of those entrusted with their health and safety.

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Discussion Points:

- It might be helpful to have SC&A review the re-evaluation;
- Two issues on exposure for X-ray diffraction units are the possibility of direct beam exposure and the issue of scatter;
- These are low energy X-rays;
- One question would be what cancers in an SEC model would be caused by X-rays at this low energy;
- An observation that the purpose of the contractor is to provide technical information the Board might not be able to deal with by itself as a group;
- This will be a relatively short and easy-to-absorb document;
- The petition and site profile are not that complex and there was a suggestion the contractor not be involved until the Board has identified that the issue is too complex to handle without help.

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The Chair ruled this presentation will take the nature of a status report and the item will be on the agenda for the next meeting to determine whether the Board is prepared to make a recommendation at that point that SC&A conduct a review.

Dr. Melius called for a consensus of the Board to his suggestion that SC&A become involved now. The consensus was to see the NIOSH report first and then make a determination whether additional help is needed.

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Agenda and Location for July Meeting

Dr. Wade announced that since the issue has been raised, he will move a topic from tomorrow's agenda, which is the matter of the July meeting agenda. At the moment it is scheduled to be in the Hanford area and, unless another location appears to have some urgency, that plan will remain for July 17, 18 and 19 in Richland, Washington.

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Dr. Ziemer noted there were minutes enclosed in the members' information packets for the April 5 meeting and asked that Board members read them tonight so they can be approved tomorrow.

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ROCKY FLATS SEC PETITION

Dr. Wade announced **Ms. Josie Beach** is conflicted on this site and is seated in the audience during this presentation and discussion.

The plan outlined by **Dr. Wade** was to hear from NIOSH on issues the Board raised at the May meeting. There will be a report from the Board working group and an opportunity for discussion of both these presentations. Later in the afternoon and into the evening will be a public comment period, with continued discussion and comments on the petition and presentation from the petitioner tomorrow, after which appropriate motions and actions by the Board on the Rocky Flats petition are anticipated to take that to closure.

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Update on NIOSH Evaluation Report

Dr. Brant Ulsh,
NIOSH

Dr. Ulsh began by recapping the events from the initial evaluation report in April of last year, and those from May of this year when the Board met relative to this petition. He noted three issues on which the Board had requested NIOSH provide supplemental information, and briefly outlined how NIOSH had arrived at this point.

One of the biggest issues for the working group was the issue of data integrity, and was approached from a number of angles. One was individual data integrity; NIOSH's conclusion on that issue was based on examination of concerns expressed by the public, the petitioners and the working group. What NIOSH found was issues that had safety implications, but they were the types of issues typically found in large dosimetry programs and none systematically prevented NIOSH from doing dose reconstructions.

The next angle of approach on the issue of data integrity dealt with logbooks. The concern expressed was that some workers felt exposures experienced in the field were not reflected in their dosimetry records and suggested a review of field logbooks from the time to see if a mismatch would be found between logbooks and worker rad files.

Sixty-five logbooks with useful information were located. This was specific bioassay results, internal dosimetry results, notations of people who had gone for a lung count on a particular day. A random sampling was pulled and compared to the information found in those individuals' radiation files. What was found was a 94 percent agreement between the two sources of data. Again the conclusion was that there was no systematic evidence of a problem that would prevent NIOSH from doing dose reconstructions.

Last angle of approach on the data integrity issue involved safety concern documents. **Dr. Ulsh** explained this was a formal mechanism at Rocky Flats for workers to submit to management items of concern from a safety standpoint. Management was required to respond. If a worker was not satisfied, it could be elevated to a joint company/union safety committee.

The petitioner informed NIOSH of a database of 5,000 safety concerns and NIOSH examined those. NIOSH and SC&A worked to identify, based on title or description of content within that universe of 5,000, individual concerns that might have data integrity implications. A detailed analysis was done for those identified, and some important issues were found, some with very important safety implications. But

none were found that would prevent NIOSH from doing dose reconstructions.

Those three approaches that the working group took to look at the data integrity issue was a big part of the investigation that has occurred over the last year. **Dr. Ulsh** commented that as a participant in the workgroup meetings he could verify the working group took to heart all the concerns expressed by petitioners and workers. They requested information from NIOSH and SC&A to support their investigation. And while some people have been dismayed by the length of time the process has taken, which is understandable, the level of detail gone into by the working group far exceeds what would be seen at other sites and is a testament to the seriousness with which they have taken those concerns.

Meanwhile NIOSH has been accumulating completed dose reconstructions from Rocky Flats and has completed 1,052 of the 1,230 cases referred from the Department of Labor for dose reconstruction. **Dr. Ulsh** commented that he understood it's been a long process and that some have expressed the opinion that during this time NIOSH has changed the way dose reconstructions are handled, and take that to mean that in some manner it should be the basis upon which the SEC petition should be granted. He emphasized that Rocky Flats is the same as any other site. Dose reconstructions are done and, as new information becomes available, adjustments are made to the way those DRs are conducted.

Dr. Ulsh observed that the alternative would be to sit on the claims and wait until perfect information was available, which would never happen and nobody would get an answer. Therefore it's handled the way it is both here and at other places: They proceed with dose reconstructions and new information is incorporated as it is received. Completed claims are reviewed in cases where the new information might have an effect.

That look-back leads to the three issues on which the Advisory Board requested NIOSH provide supplemental information. At that same time the Board recommended addition of a class of worker to the SEC for anyone who was or should have been monitored for neutron exposure from 1952 to 1958.

The three issues are thorium, Building 881 external monitoring in the 1950s, and neutron doses from 1959 to 1970. **Dr. Ulsh** proceeded to address each issue individually and in great detail.

The NIOSH conclusions relative to thorium are that the activities at Rocky Flats were limited, involved small quantities and few workers. Detailed information has been provided on when and how these activities

occurred and who was involved. There is no evidence that a thorium intake ever occurred. Thorium does not present SEC implications.

After addressing the second issue, the Building 881 external monitoring data in the 1950s, and providing considerable detail about NIOSH's background and investigation into this issue, **Dr. Ulsh** announced that NIOSH conclusions were that the Building 881 uranium workers' exposure potentials were below ten percent of the regulatory limit. The coworker models NIOSH is using in dose reconstruction are very favorable for these workers. Minor plutonium contamination presented insignificant external exposure potential. This issue does not present SEC implications.

The third issue, neutron doses from 1959 to 1970, were also addressed in considerable detail by **Dr. Ulsh**. NIOSH conclusions on that issue were that the 87,943 films evaluated by the NDRP form a reliable basis for neutron dose reconstruction. NIOSH concurs with the NDRP Scientific Advisory Committee that NDRP provides a reliable basis for NIOSH dose reconstruction. The methods described are even more claimant-favorable than NDRP, and the issue does not present SEC implications.

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As a sidebar to the thorium issue, **Dr. Ulsh** also offered a possible explanation for the conflicting testimony between Rocky Flats workers and Dow Chemical workers as to large shipments of thorium/magnesium alloy from the Dow Madison plant to Rocky Flats. Rocky Flats workers on the shipping/receiving authorization committee were interviewed, the people who were in charge of receiving materials that came onto the site, and nobody had recollection of magnesium alloy from Dow Madison or from anywhere else.

It is known that magnesium alloy was used in the aircraft industry and in missile construction because of its heat resistance, light weight and strength, and affidavits submitted by Dow Madison workers have indicated their alloys were used in missiles, specifically the Titan missile. It is also known that Titan missile work was performed in Colorado at Rocky Mountain Arsenal, not at Rocky Flats.

Dr. Ulsh offered his personal knowledge that, as a former Denver resident, unless you worked at one of the two facilities, even Colorado residents got Rocky Mountain Arsenal and Rocky Flats confused.

Mr. Griffon had asked **Dr. Ulsh** to contact the individual from Dow Madison who had indicated he had seen the crates of alloy going to Rocky Flats, which **Dr. Ulsh** did. He asked the worker if it were

possible the facility was Rocky Mountain Arsenal rather than Rocky Flats, and the person indicated that he didn't know there were two different facilities.

Dr. Ulsh submitted that confusion between the two facilities is the most plausible explanation, with Rocky Flats workers and Dow Madison workers offering conflicting testimony. There is no evidence in the inventory records that magnesium alloy came to Rocky Flats, and no evidence that it was found in the chem risk reports that inventoried radionuclides and toxic chemicals. There is no evidence that magnesium alloy ever came to Rocky Flats.

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Discussion Points:

- The sources of information for the NIOSH response;
- The presentation quotes from the Scientific Advisory Committee from the NDRP, but there is no reference to that in the report;
- That body never produced a peer-reviewed report, but did provide minutes and recommendations;
- The NDRP was a ten-year program and the expert panel functioned just as this Board, overseeing the process and producing minutes after each meeting from the beginning to the end of the project;
- Questions about the bar graph on the thorium strike data;
- Whether the fairly significant process changes and sub-critical experiments done in Building 881 were looked into;
- Clarification on predicted versus measured dose in the neutron slides;
- Clarification on how to read the graph.

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Congressman Udall read a prepared statement into the record. As author of House Resolution 904 designed to reinforce Congressional efforts to provide compensation and care for nuclear weapons workers made sick by on-the-job exposure to radiation. He thanked the Board for taking on their difficult task and urged consideration of several technical issues that will expand the exposures covered and number of workers deserving benefits.

Congressman Udall's statement is available in its entirety in the transcript of the meeting, which is available on the NIOSH web site at www.cdc.gov/niosh/ocas.

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Rocky Flats Workgroup Report

Mark Griffon, Chair

Mr. Griffon introduced **Ms. Wanda Munn** and **Mr. Robert Presley**, and **Mr. Mike Gibson** who was present by telephone, as the members of the Rocky Flats workgroup. **Mr. Griffon** indicated he would be addressing the same three issues discussed by **Dr. Ulsh**.

He began by discussing the workgroup process and some of the issues the workgroup resolved through the resolution process with SC&A and NIOSH. He described their establishment of lines of inquiry, the numbers of meetings and conference calls. Issue papers have been exchanged between NIOSH and SC&A to facilitate working group discussions.

The procedures outlined the scope of review. Timeliness is addressed by which issue should be considered. Some of the major issues resolved by the workgroup include the high-fired plutonium, the external and internal data completeness, data reliability, internal dose coworker model and D&D internal dose.

Mr. Griffon went into detail on each of those issues, the specific concerns, workgroup conclusion and any continuing work on the issue, as well as Program Evaluation Reviews.

Mr. Griffon elaborated on the three issues from the workgroup's point of view, noting that at this point the workgroup simply wants the Board to have discussion. It has no specific recommendations to make right now, and would also ask if it would be possible for NIOSH to provide information backing up the graph from **Dr. Ulsh**'s report related to the predicted versus measured doses so that the workgroup could have that information to review. Based on that request, **Mr. Griffon** had no motions to offer at this time.

There were no questions posed relative to the workgroup report.

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PUBLIC COMMENT PERIOD

The following is a list of the members of the public who spoke. A full transcript of their comments is available on the NIOSH/OCAS web site, www.cdc.gov/niosh/ocas.

Lieutenant Governor of Colorado Barbara O'Brien; Senator Joan Fitzgerald, President of the Colorado State Senate; Mr. David Hiller (Senator Ken Salazar's staff); Mr. James Horan, former Rocky Flats

worker; Ms. Judy Padilla, former Rocky Flats worker; Mr. Tom Haverty, former Rocky Flats worker; Ms. Kay Barker, ANWAG; Ms. Terrie Barrie, ANWAG; Mr.George Barrie, former Rocky Flats worker; Mr. Robert Carlson, former Rocky Flats worker; Mr. Dennis Romero, former Rocky Flats worker; Ms. Michelle Dobrovolny, claimant; Mr. Raymundo Salazar, claimant; Mr. Jerry Mobley, claimant; Mr. Jeff Schultz (reading statement from a survivor); Ms. Laura Schultz, petitioner; Ms. Nila Adkins, survivor; Ms. Donna Quinlan, survivor; Ms. Carmen Blackmon, survivor; Mr. Charlie Wolf, claimant; Ms. Elena Ramer, survivor; Ms. Genie Haynes, former Rocky Flats worker; Mr. LeRoy Moor, Rocky Mountain Peace & Justice Center; Mr. Randall Weiner, environmental attorney; Mr. Elliott Stokes, former Rocky Flats worker; Ms. Tina Kanne-Evert, former Rocky Flats worker; Mr. Jim McCabe, former Rocky Flats worker.

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Dr. Ziemer announced the Board would reconvene the following morning at 8:00 a.m. at which time the main focus would be continuation of deliberations on the Rocky Flats petition. He urged all interested parties to be in attendance at that time.

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With no further business to come before the Board, the meeting adjourned until 8:00 a.m. on Tuesday, June 12, 2007.

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Tuesday, June 12, 2007

Dr. Ziemer called to order the second day of the meeting, making his standard announcements of available materials, and a reminder that for the Rocky Flats portion of the meeting Board member **Ms. Josie Beach** would be seated in the audience due to her conflict of interest with that site.

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ROCKY FLATS SEC PETITION

Workgroup Report (continued)

Discussion Points:

- Clarification on thorium strikes, where and when;
- Confusion has resulted from conflicting documentation;
- Changes in the way buildings were numbered adds to the confusion;

- Has the working group seen the air data referred to by **Dr. Ulsh**;
- New information with regard to potential neutron exposures, the type of dosimetry for neutron exposures, when it changed, when various types were in place.

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Petitioners' Response

Ms. Jennifer Thompson, petitioner spokesperson, introduced **Mr. Anthony DeMaiori**, former President of the United Steel Workers of America, original Rocky Flats petitioner.

Mr. DeMaiori introduced **Congressman Bob Beauprez**, who led the assembly in the Pledge of Allegiance.

Ms. Thompson expressed her thanks to the Board, working group, workers, Colorado Congressional delegation, Governor and Lieutenant Governor for their work on and support given for the Rocky Flats SEC petition. Displaying some of their photographs, she led a moment of silence in remembrance of Rocky Flats workers who died waiting for their compensation. She remarked the reason for being at the meeting is for the sick workers and their spouses, who have a difficult time working through the process. **Ms. Thompson** commented the workers should not have to fight for their lives and fight with the government at the same time in order to get their claims compensated.

Reiterating the actions taken earlier to approve what she called three small, carved-out classes, **Ms. Thompson** announced they were present today to press SEC status for the entire class of RF workers. She cited some statistics she contended NIOSH doesn't announce, such as the number of days it takes a claim to be processed, the number of workers who died waiting to be approved, the percentage of workers with cancer that have been denied, et cetera.

Ms. Thompson opined that the charter of the Advisory Board is to evaluate the petition, not to help the government fix wrongs, and that the RF petition is valid. She asserted some of NIOSH's basic assumptions were very flawed, and that at this point they're still arguing about fundamental facts about the history of buildings.

The question of why the Neutron Dose Reconstruction Project is still an outstanding issue was raised by **Ms. Thompson**. She discussed shameless misrepresentations regarding activity after the 1969 fire. She reported the petitioners believe there are substantial process issues and that if they end up in appeal the two things they will discuss will be science and process.

Ms. Thompson remarked on conflicting reports from SC&A and NIOSH, asserting that because NIOSH is going to have to do 3,000 repeat dose reconstructions for 3,000 people, it sounds like they couldn't reconstruct dose accurately to begin with. She commented that with remaining issues on high-fired oxides, particle size, retention in the lungs, that is an indication dose reconstructions cannot be done accurately.

The definition of the word "plausible" as used by NIOSH was discussed by **Ms. Thompson**. She commented the petitioners believe there are so many unresolved issues at this point that for that reason they are asking the Board to vote on the petition in its entirety.

Ms. Thompson went on to enumerate other issues, such as accuracy of monitoring, timeliness, neutron doses, timeliness to process a claim, missing records, new methods where models have not been sufficiently tested, as further reasons to grant the petition.

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Mr. Bill Brady, law professor at the University of Denver's Sturm College of Law and who represents cancer victims exposed to toxic substances, spoke about his claimant client, Charlie Wolf, who has been granted medical benefits under Part E but has still been denied under Part B based on a dose reconstruction with less than 50 percent probability of causation.

Mr. Brady expressed his desire to share evidence presented at the hearing on Mr. Wolf's claim and which he thought might be useful during the Board's deliberations.

A plutonium working group report done by the Department of Energy in 1994 was discussed. The report related to environmental safety and health vulnerabilities associated with the Department's plutonium storage program, with five pages devoted to Rocky Flats.

Reports by Dr. Jim Ruttenber, University of Colorado Health Sciences Center, were cited. These reports specifically deal with Rocky Flats. One recent report submitted in draft form is entitled "Risk Estimates of Brain Tumors and Ionizing Radiation". A second report, entitled "The Mortality of Plutonium Workers at the Rocky Flats Nuclear Weapons Plant", was submitted at the Part E hearing.

Also submitted were reports from Sanford Cohen & Associates which **Mr. Brady** felt were critical of the dose reconstruction process at work, citing specifically a January 2005 letter to **Mr. David Staudt** from **Dr.**

John Mauro. **Mr. Brady** concluded there is a great deal of scientific uncertainty surrounding the process of dose reconstruction.

Several other reports and criticisms were outlined by **Mr. Brady**. He compared his law students to the scientific community and how they deal with what they don't know, and the danger of thinking they know something that isn't accurate, what he called "an air of benevolent arrogance." **Mr. Brady** went on to describe an alternative approach known as "the precautionary principle", a goal of preventing rather than reacting to harm. He discussed reasonable doubt and whether reasonable doubt is being given to the workers.

Mr. Brady closed his presentation by asking the Board to adopt a precautionary approach and approve the petition.

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Mr. Jerry Harden, past president of Steel Workers Local 8031, who was employed at Rocky Flats for 37 years, described his lifetime exposure and the high lung count discovered in 1988. **Mr. Harden** explained he had been a radiation control technician, and when he was hired was not given a baseline radiation analysis, something that did not regularly occur until after the 1969 fire.

Mr. Harden discussed the film badge he was issued when hired, and various activities at Rocky Flats. He remarked on the types of exposures that haven't been mentioned in the evaluation, such as radon, beta exposures, tritium exposures and that there was a sequence of incompetence, deception, distortion and omission at play.

He talked about the money spent by the government soliciting workers to participate in the Transuranium Registry by donating their remains so that scientists can analyze the data gleaned during autopsy. He contended that information has been ignored in this program.

Mr. Harden concluded his remarks by stating that the government has conveniently hidden behind the cloak of secrecy and, by using pseudo-science created by arrogant intellectuals, is denying the workers and the public access to the truth.

A question was raised by the Board and discussed by **Mr. Harden** related to materials given to workers when entering an area for decontamination, how it affected them, and the mixtures they would come up with.

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Colorado **Congressman Bob Beauprez** spoke in support of the petition. He commented that the workers at Rocky Flats did their jobs with the assumption that, if something unforeseen happened to them, somebody would be there to take care of their injuries. He observed that a nation able to figure out how to win a cold war should be big enough to have compassion and caring and justice to take care of the warriors who won it. He remarked that what frustrates people about government is that, as big and great as the nation is, it sometimes can't find the means to do what is blatantly obvious.

Congressman Beauprez addressed the Act itself, noting he was present for the legislation and voted for it. He commented that if the record isn't perfectly clear, he and his colleagues, as representatives of the taxpayers, were saying these people should be taken care of. They earned it, deserve it, showed up, did the job and took the risk. Some are paying the ultimate price. They did not intend them to wait through volumes of work while a reason to deny is found. They intended reasons to approve, and do it in 180 days or less.

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Mr. DeMaiori announced the period for petitioner comment was closed.

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Open Forum

Dr. Ziemer opened the floor for discussion and recognized a gentleman believed to be part of the petition group. The gentleman never identified himself, but raised a question regarding what documentation NIOSH used, other than bioassay, and protection factors of various respirators.

A number of unidentified members of the audience, who spoke without benefit of microphone, interjected comments as questions were being asked about types of respirators. **Dr. Ulsh** explained in NIOSH dose reconstructions there were no reductions in intake considered because of respirators. They assume no protection factor at all, but rely strictly on the bioassay data, so it wouldn't matter whether a respirator were malfunctioning or inappropriate for the purpose. It's as if they were not wearing a respirator.

There followed a dialogue between **Dr. Ulsh** and the unidentified audience member about the issue, after which **Dr. Ziemer** added that the Board had examined the methodology and agrees that NIOSH gives the most claimant-favorable outcomes.

Ms. Judy Padilla raised a question about the 50 percent probability of causation, asking 50 percent of what. She contended the petitioners never know what the number is or how NIOSH arrived at the number.

An open forum discussion followed with unidentified audience members, **Dr. Jim Neton** and **Mr. Bill Brady**.

Dr. Genevieve Roessler observed **Dr. Ruttenber** is recommending a large epidemiological study on RF workers, and is particularly interested in brain cancer. She explained epidemiological studies require dose estimates even better than what is needed for this program, so her conclusion is that **Dr. Ruttenber** feels he can get dose estimates from Rocky Flats workers. A discussion of **Dr. Ruttenber**'s study evolved as to whether it looked at only brain tumors.

The tritium issue was raised again to ask NIOSH if there were in fact tritium bioassay on any workers at Rocky Flats and was discussed at length by **Dr. Ulsh** and **Dr. Melius**, with **Dr. Arjun Makhijani** and **Ms. Kathy Robertson-DeMers** from SC&A verifying the availability of tritium results.

Mr. DeMaiori provided a very detailed description of the decontamination procedures in answer to the question raised earlier from the Board.

Mr. David Hiller from **Senator Ken Salazar**'s office raised an issue of how members of the Scientific Advisory Board for the NDRP were selected. He also observed that in some circumstances NIOSH doesn't accept the statement of individuals as defining what occurred at the plant, yet they had just listened to **Mr. DeMaiori** provide anecdotes of incidents in which he was personally involved and called for an explanation of the dichotomy.

There was discussion of a report entitled "A History of U-233 at Rocky Flats", written 40 years after the fact. It relied on a classified document authored in 1965, just after the time of the thorium strike.

Mr. Hiller then raised the question for SC&A whether they have concluded that the NDRP is not accurate and reliable. **Dr. Makhijani** provided a discussion of the issue and its various facets, components of the NDRP, the notional doses of people not monitored, badges not found, correction factors, et cetera. He added that the working group has been aware of all of those issues and has also looked at them.

Mr. Hiller's last question was addressed to NIOSH, whether they have analyzed how long it will take to conduct whatever reconstructions

they're proposing, whether they have the staff to do that and whether it will be a period of several months or another year before those doses are recalculated. **Dr. Ziemer** suggested that they wait for an answer on that until they determine whether the Board will propose any such thing.

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Board Discussion

Discussion Points:

- Usefulness of a follow-up from NIOSH on the narrow question of '67 through '70, with the zeroes and correction factor approaches;
- The workgroup saw a point in late '66 or early '67 where those workers most likely to have high neutron exposures had measured data and not notional data;
- There was no independent verification of the master gold standard reader;
- His calibrations were done by rereading calibration badges he himself had prepared;
- He had disciplined himself to not remember those readings;
- The AEC did not require the archiving of TLDs once TLDs were introduced in 1971.

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Return to Open Forum

Board discussion reverted back to the open forum with an unidentified member of the audience questioning zeroes or blank readings on TLDs and how those numbers would be assigned in dose reconstruction. **Dr. Ulsh** attempted to answer the question, concluding that the TLDs are a one-time read that are reset when read, and there is no indication there was a systematic problem with TLDs, unlike the NTA film badges covered by the NDRP.

A different audience member remarked he had lived all the stuff being discussed and contended his readings should have been ten times higher than they were. He asserted big salaries were being generated for people who knew big words while people are dying and that the Board's priorities are wrong. He never saw any AEC or DOE people in the area with him because they stayed where it was safe.

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Return to Board Discussion

Discussion Points:

- Clarification from NIOSH on the question of the gold standard and reading of the NDRP film badges;
- If a standard is the one all others were testing to every day, multiple individuals are essentially verifying the same standard repeatedly simply because that's the standard to be met;
- Most of the delays the members of the audience are concerned with are not on the heads of people being blamed, but rather lie with the Board working group, and the reason they've taken place is because there were very detailed concerns brought forward by the petitioners; the Board contractor and the workgroup went through every activity to examine each one in painful detail;
- A call for reassurance that there are no significant operational changes that may negatively affect the workgroup's analysis on coworker models;
- Clarification on a point relative to subcritical experiments in the 881 building raised in the petitioner's presentation.

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Return to Open Forum

There was further commentary from an unidentified audience member to contest NIOSH statements about the number of individuals required to deal with the subcritical experiments.

Additional commentary related to management telling workers their doses were too high so they hid their badges, and other incidents that happened on the job.

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Return to Board Discussion

As chairman of the working group, **Mr. Griffon** outlined the details supporting a preliminary motion, offering a sense of the motion first.

> **A motion was made and seconded to establish a class of the Special Exposure Cohort for all workers who were monitored, or should have been monitored, for neutron exposures from January 1, 1959 through December 31, 1966.**

Discussion Points:

- Perhaps the Board should consider the petition to include all Rocky Flats workers, or broaden the scope;
- Perhaps it should be expanded to include through the end of 1970;
- The highest exposed individuals from '67 through '70 were measured during this time period.

The question was called for a vote on the motion. A roll call vote was taken.

The motion carried with a vote of 8-1-1.

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A motion was made and seconded that the Board accept the NIOSH evaluation conclusion that they have the ability to reconstruct dose for all radiation dose from the time period January 1, 1967 through 2005, and therefore deny the petition to add that class to the Special Exposure Cohort.

Discussion Points:

- Too many open issues have not been adequately addressed to vote at this time;
- The class should be added based on the experiences of the workers;
- The Board's responsibility is to deal with the issue of whether adequate information exists to complete reasonably accurate dose reconstructions for individuals who have had radiation exposure, rather than chemical cocktails;
- There are still gaps in the information;
- An opinion expressed that dose reconstructions cannot be done;
- NIOSH and SC&A have done their jobs and provided reports and data that says they can do dose reconstruction, do it accurately and in favor of the petitioner;
- Although it's difficult to listen to the people and sympathize with their health problems, NIOSH has a very detailed evaluation of the situation and has demonstrated they can reconstruct the doses in the manner required by the rule;
- Another responsibility is to render decisions in a timely manner, and that criterion was not met in this situation;
- The workgroup has not accepted NIOSH's word, but have had SC&A look at all the issues thoroughly with a resulting report of nearly 1,000 pages containing findings consistent with what the workgroup has said;

- The Board owes a debt of gratitude and thanks for the extra effort that has gone into the project by all concerned, and it appears that dose can be reconstructed for this group of employees for the time period outlined;
- Disagreement with conclusions of the workgroup is not meant to criticize their efforts, but the fault is with the process and a site profile largely written by people with significant conflicts of interest;
- Based on the work of the working group, it is feasible for NIOSH to do dose reconstruction with sufficient accuracy to make a claimant-favorable decision;
- The workgroup has in some ways caused NIOSH to change much of what they were doing earlier so that, regardless of the final vote, dose reconstructions will be done in a much better manner than would have been done prior to the workgroup's efforts;
- It's unfortunate the burden has been passed to a group like the Board to correct what Congress should have done correctly in the first place, but the way the law was originally written requires the Board to go through a process that requires time-consuming efforts.

By roll call vote, the motion carried by a margin of 6-4.

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An unidentified member of the audience read into the record a piece of poetry called "The Silent Soldiers."

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Dr. Ziemer indicated there was a carry-over item that he had committed earlier to **Mr. Hiller** to try to get an answer on his question imbedded in the original proposal to encourage NIOSH to utilize new information from the working group to upgrade how dose reconstructions are done on this site. Although **Dr. Neton** and **Dr. Ulsh** had both left the meeting, **Dr. Neton** was reached by telephone to participate in the discussion on the issue of timely re-evaluation of completed dose reconstructions based on technical changes resulting from the workgroup process.

The four points are that NIOSH will use a modified approach for assessing internal dose due to super S plutonium for all affected cases; NIOSH will use modified internal dose coworker approach using the agreed-upon approach of using the 95th percentile values, the electronic data, in estimating worker dose via coworker internal dose models for all affected cases; NIOSH will use modified internal dose coworker approach for all D&D workers, using the agreed-upon approach

of using the 95th percentile values of the electronic data in estimating worker dose via coworker internal dose model for all relevant radionuclides for all affected cases; and NIOSH will use modified approach for reassessing neutron doses for the time period January 1, 1967 through December 31, 1970 for all affected cases.

The question is how long will it take to implement those changes. **Dr. Neton** clarified that they would take the analysis far enough to make a determination that it doesn't change the outcome of the decision. And with that proviso in mind, it was his opinion that it would be accomplished within a matter of a month or two.

It was agreed that the motions made during the day's business would follow the standard wording and language normally submitted to the Secretary, including the 250-day issue. A copy of the language used in the motions when transmitted to the Secretary is attached hereto and incorporated herein by reference.

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BOARD WORKING PERIOD

Approval of April 5, 2007 Minutes

A motion was made and seconded to approve the minutes of the April 5, 2007 meeting.

The motion carried unanimously.

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Hanford SEC Update

While **Dr. Neton** was on the phone, **Dr. Wade** presented the update on the Hanford SEC petition requested by the Board and which had been left with him by **Dr. Neton**. The petition proposed to add a group of workers from Hanford for the period January 1, 1942 through December 31, 1990. An evaluation report was issued on May 18, 2007 proposing to add a class from October 1, 1943 through August 31, 1946. A second NIOSH evaluation report will be issued to address the remaining years. Anticipated completion date is by August 21st of this year.

There is an SEC outreach meeting scheduled for Hanford on June 18. **Dr. Wade** offered this in response to the query of whether they should hold a meeting in the Hanford area. He noted there is one petition evaluation report that recommends a class be added. There is another

pending, and it might be good to put the Board before the workers at Hanford to start hearing their stories.

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Plans for SC&A Contract for Next Year

SC&A is a critical part of the process and **Dr. Wade** expressed his desire to ensure SC&A's availability to the Board at the start of next fiscal year, October 1 of 2007. **Dr. Wade** and **Mr. Staudt** from the contracting office have looked at a time line to be in receipt of SC&A proposals for next year's work when the Board meets in July, at which time the Board could modify proposals or amend proposals. That would give **Mr. Staudt** the ability to get information from SC&A and issue modifications as needed, moving toward having SC&A funded and working on October 1.

Dr. Wade called for Board concurrence that he go to SC&A and ask them to produce cost proposals on Task I, site profile review, to include six site profiles presented in a way the Board would be able to see the unit cost so they could decide whether to adjust up or down. Task III, the procedures review, he would request a cost proposal to include review of 30 procedures, but would ask for a unit cost on three types: review of a new procedure, review of previously-reviewed procedure that has undergone major revision, and review of a Program Evaluation Report.
For Task IV, individual dose reconstruction reviews, he would request a proposal for 60 such reviews plus the cost of additional blocks of 20. For Task V, the SEC task, **Dr. Wade** would ask for six, three focused reviews and three general broad reviews, with unit cost for each type.

Mr. Staudt added that Task VI covers program management costs and noted it would likely be consistent again this year. **Dr. Wade** will also be asking for a reasonable and prudent proposal for project management.

A motion was made and seconded that Dr. Wade charge SC&A to prepare cost proposals as described.

With no discussion, the motion carried unanimously.

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Workgroup Scheduling

As all members of the procedures review workgroup were still present, **Ms. Wanda Munn**, chairman of that group, discussed a date for a workgroup conference call to take a look at outstanding procedures in

hand, which has been provided by SC&A, and go through the entire list between now and the July 17 meeting.

After discussion it was agreed the call would take place on the morning of Tuesday, June 26, at 10:00 a.m. EST.

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With no further business to come before the Board, the meeting was adjourned at 2:20 p.m.

End of Summary Minutes

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I hereby confirm these Summary Minutes are accurate, to the best of my knowledge.

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Paul L. Ziemer, Ph.D., Chair

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Date